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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/033,656	12/27/2001	Weimin Li	MICRON.076DV1	7957

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EXAMINER

BROPHY, JAMIE LYNN

ART UNIT	PAPER NUMBER
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2822

DATE MAILED: 04/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/033,656

Applicant(s)

LI, WEIMIN

Examiner

J. L. Brophy

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-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 March 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 March 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

This office action is in response to the RCE and amendment filed 3/14/03.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/14/03 has been entered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2 and 4-7 are rejected under 35 U.S.C. 102(e) as being anticipated by Marty et al (6,180,520).

Marty et al teach an IC comprising a first conductive element 11 providing a first electrical path of the circuit;

A second conductive element 12 providing a second electrical path of the circuit, the second conductive element 12 separated from the first conductive element by a gap; and

A single insulating layer 41 directly contacting the first and second conductive elements and filling the gap between the first and second conductive elements 11, 12, the insulating layer 41 comprising polysiloxane, consisting essentially of silicon, oxygen, carbon and hydrogen and incorporating carbon therein and having a dielectric constant of less than about 3.2 (col. 3, lines 29-34),

Wherein the conductive elements 11, 12 comprise metal runners.

See Fig. 1 and accompanying text.

Claims 1-7 are rejected under 35 U.S.C. 102(e) as being anticipated by Aoi et al (5,877,080).

Aoi et al teach an IC comprising a first conductive element 24 providing a first electrical path of the circuit;

A second conductive element 24 providing a second electrical path of the circuit, the second conductive element 24 separated from the first conductive element by a gap; and

A single insulating layer 21 directly contacting the first and second conductive elements 24 and filling the gap between the first and second conductive elements 24, the insulating layer 21 comprising polysiloxane, consisting essentially of silicon, oxygen,

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carbon and hydrogen and incorporating carbon therein and having a dielectric constant of less than about 3.2 (col. 10, lines 30-51),

Wherein the insulating layer has a carbon content of between about 5% and 20% relative to a silicon content (col. 11, lines 13-17), and

Wherein the conductive elements 24 comprise metal runners.

See, for example, Fig. 3(d) and accompanying text and col. 10, line 23 through col. 11, line 27.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marty et al in view of Gardener et al (5,869,379) or Aoi et al in view of Gardener et al.

Marty et al and Aoi et al teach an IC that comprises an insulating layer with a low dielectric constant as applied above to claims 1, 2 and 4-7 and claims 1-7, respectively. However, Marty et al and Aoi et al do not teach that the insulating layer may be used as a sidewall spacer.

Gardener et al teaches a transistor with a sidewall spacer made of a low dielectric constant material (col. 2, lines 13-19) for the purpose of reducing the capacitive coupling between the gate conductor and adjacent source/drain regions.

Since Marty et al, Aoi et al and Gardener et al are from the same field of endeavor, the purpose disclosed by Gardener et al would have been recognized in the pertinent art of Marty et al and Aoi et al.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the method disclosed by Marty et al or Aoi et al by using the low dielectric constant insulating layer as a sidewall spacer in a transistor structure because a person of ordinary skill in the art at the time the invention was made would have been motivated to lower the dielectric constant of the sidewall spacer in order to reduce capacitive coupling between the gate conductor and adjacent source/drain regions (see Gardener et al, col. 2, lines 21-25).

Response to Arguments

Applicant's arguments with respect to claims 1-10 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to J. L. Brophy whose telephone number is (703) 308-6182. The examiner can normally be reached on M-F (8:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on (703) 308-4905. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

JLB.

jlb

April 15, 2003


AMIR ZARABIAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800